

I claim:

1 1. A system for cooperation between pools of buyer's intelligent negotiation agents
2 for procurement using a computer that communicates over a distributed network, the
3 system comprising:

4 a pool of cooperative buyer's intelligent negotiation agents, said plurality of
5 cooperative buyer's intelligent negotiation agents having a common interest, and
6 at least one of a plurality of seller's intelligent negotiation agents in
7 communication with said pool,

8 wherein, when said pool transmits to said at least one of a plurality of seller's
9 intelligent negotiation agents a request for a bid to sell at least one item, said request
10 having a set of buyer-defined attributes minimally acceptable to said pool, said at least
11 one seller's intelligent negotiation agent submits that bid to said pool, said bid having a
12 set of seller's item specifications for at least one available item for sale by at least one
13 of a plurality of sellers associated with said plurality of sellers' intelligent negotiation
14 agents.

1 2. The system for cooperation of claim 1, further comprising:

2 a cooperative communications network comprising a distributed network of
3 nodes related by a common interest, and
4 each of a plurality of buyer's intelligent negotiation agents registered with said
5 cooperative communications network,
6 wherein, when a lead cooperative buyer's intelligent negotiation agent

7 broadcasts to said cooperative communications network an interest in a selected item,
8 said pool forms of intelligent cooperative buyer's negotiation agents having a shared
9 interest in said selected item.

1 3. The system for cooperation of claim 2, wherein:
2 said lead intelligent cooperative buyer's negotiation agent is for direct
3 communication with said at least one of a plurality of seller's intelligent negotiation
4 agents.

1 4. The system for cooperation of claim 2, further comprising:
2 said set of buyer-defined attributes having a ranked structure ordered according
3 to a most desired attribute to a least desired attribute, and
4 a compromised set of buyer-defined attributes excluding said least desired
5 attribute, said compromised set of buyer-defined attributes for submission to said at
6 least one of a plurality of seller's intelligent negotiation agents.

1 5. The system of claim 2, wherein:
2 at least one of said plurality of buyer's intelligent negotiation agents selects one
3 of a plurality of evolutionary computation resources to perform a negotiation.

1 6. The system of claim 5, wherein:
2 said plurality of evolutionary computation resources comprises genetic

3 algorithms.

1 7. The system of claim 5, wherein:

2 said plurality of evolutionary computation resources comprises genetic
3 programming.

1 8. The system of claim 5, wherein:

2 said plurality of evolutionary computation resources comprises neural networks.

1 9. The system of claim 5, wherein:

2 said lead cooperative buyer's intelligent negotiation agent selects one of said
3 plurality of evolutionary computation resources for optimal computation of a match for
4 each specification of a set of buyer's specifications in seller specifications received
5 from said sellers' intelligent negotiation agents.

1 10. The system of claim 1, wherein:

2 said pool of buyer's intelligent negotiation agents compares each of said set of
3 seller's item specifications against said set of buyer-defined attributes, and said buyer's
4 intelligent negotiation agent selects an optimal set of new buyer-defined attributes in
5 view of a preprogrammed buyer strategy.

6 11. The system of claim 5, wherein:

7 said buyer's intelligent negotiation agent receives a constantly changing stream
8 of information from a plurality of market databases, and said buyer's intelligent
9 negotiation agent evolves in response to said stream of information for seeking an
10 optimal match for each specification of a set of buyer's specifications in a bid from a
11 sellers' intelligent negotiation agent.

1 12. The system of claim 2, wherein
2 at least one of said buyer's intelligent negotiation agents transmits its executable
3 code to a remote location.

4 13. A system for cooperation between buyer's intelligent negotiation agents for mass
5 customization procurement using a computer that communicates over a distributed
6 network, the system comprising:

7 a pool of a plurality of cooperative buyer's intelligent negotiation agents, each of
8 said buyer's intelligent negotiation agents having a procurement interest in at least one
9 of a plurality of items and bundles, said pool having a common interest comprising a
10 combination of said procurement interests of all of said buyer's intelligent negotiation
11 agents,

12 a plurality of seller's intelligent negotiation agents, each said seller's intelligent
13 negotiation agent having an authority from an associated seller to sell at least one of a
14 plurality of items and bundles comprising said common interest, each of said plurality of
15 seller's intelligent negotiation agents in communication with said pool,

13 wherein, when said pool transmits to said plurality of seller's intelligent
14 negotiation agents a request for bids to sell all said items and bundles needed to fulfill
15 said common interest, each of said plurality of seller's intelligent negotiation agents
16 submits to said pool a bid to sell said at least one of a plurality of items and bundles
17 within its authority.

1 14. The system for procurement of claim 13, wherein:
2 said buyer's intelligent negotiation agent transmits to at least one of said seller's
3 intelligent negotiation agents a counter-offer to a bid from that seller's intelligent
4 negotiation agent.

1 15. The system for cooperation of claim 13 wherein:
2 said authority of each of said plurality of seller's intelligent negotiation agents is
3 to sell items and bundles different than that of the authorities of the other of said
4 plurality of seller's intelligent negotiation agents.

1 16. The system for cooperation of claim 13 wherein:
2 the procurement interest of each of said cooperative buyer's intelligent
3 negotiation agents of said pool is different than the procurement interest of the other
4 cooperative buyer's intelligent negotiation agents of said pool.

- 5 17. The system of claim 13, wherein:
6 said bid comprises a discounted price for said selected item.
- 1 18. The system of claim 13, wherein:
2 said bid comprises an option to upgrade features of said selected item.
- 1 19. The system of claim 13, wherein:
2 said bid comprises an option to include additional services related to said
selected item.
20. The system of claim 13, wherein:
said bid comprises a quantity price discount for said selected item.
21. The system of claim 13, wherein:
said bid comprises financing for procurement of said selected item.
- 1 22. The system of claim 13, wherein:
2 said bid comprises warranties.
- 1 23. The system of claim 13, wherein:
2 said bid comprises insurance.

1 24. The system of claim 13, wherein:

2 said bid comprises a proximity marketing discount.

1 25. The system of claim 13, wherein:

 said bid comprises a yield management promotion.

1 26. The system of claim 13, wherein:

2 one of said bids comprises at least one contract contingency authorizing a seller

3 associated with one of said sellers' intelligent negotiation agents to pay a buyer

4 associated with one of said cooperative buyer's intelligent negotiation agents a penalty

5 if said seller elects to sell said at least one of a plurality of items and bundles to

6 another than said buyer.

1 27. A method for cooperation between pools of buyer's intelligent negotiation agents

2 for procurement of an item using computers that communicate over a distributed

3 network, the method comprising:

4 defining a set of buyer-defined attributes minimally acceptable to a pool of

5 cooperative buyer's intelligent negotiation agents, said set of buyer-defined attributes

6 minimally acceptable to said pool for an item, said pool comprising a plurality of buyer's

7 intelligent negotiation agents having a common interest, said item one of a group of

8 individual product items and individual service items,

9 transmitting from at least one of a plurality of seller's intelligent negotiation

10 agents to a neutral cooperative agent a set of seller's item specifications for said item,
11 said item available from at least one of a plurality of sellers represented by said
12 plurality of seller's intelligent negotiation agents,
13 transmitting from said neutral cooperative agent to said pool.

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1 28. The method of claim 27, wherein:
2 said pool of cooperative buyer's intelligent negotiation agents transmits an
3 acceptance to said neutral cooperative negotiation agent responsive to said set of
4 seller's item specifications.

1 29. The method of claim 28, wherein:
2 said neutral cooperative negotiation agent transmits to said plurality of seller's
3 intelligent negotiation agents an acceptance responsive to said set of seller's item
4 specifications.

1 30. The method of claim 27, further comprising:
2 registering each of said plurality seller's intelligent negotiation agents with a
3 cooperative communications network, said cooperative communications network
4 comprising a distributed network of sellers' nodes and buyers' nodes all related by a
5 common interest,
6 forming said pool of intelligent cooperative buyers' negotiation agents based on
7 a shared interest in said selected item,

8 electing from said pool a lead intelligent cooperative buyers' negotiation agent
9 for communicating on behalf of said pool with said cooperative communications
10 network,
11 broadcasting by said lead intelligent cooperative buyers' negotiation agent to
12 said cooperative communications network an interest in said selected item.

1 31. The method of claim 30, further comprising:
2 ranking a set of buyer-defined attributes according to a most-desired attribute to
3 a least-desired attribute,
4 excluding from said set of buyer-defined attributes said least-desired attribute to
5 form a compromised set of buyer-defined attributes,
6 submitting said set of compromised buyer-defined attributes to said at least one
7 of a plurality of intelligent sellers' negotiation agents.

1 32. A method for cooperation between buyer's intelligent negotiation agents for
2 mass customization procurement using computers that communicate over a distributed
3 network, the method comprising:
4 forming a pool of a plurality of cooperative buyer's intelligent negotiation agents,
5 each of said buyer's intelligent negotiation agents having a procurement interest in at
6 least one of a plurality of items and bundles, said pool formed around a common
7 interest comprising a combination of said procurement interests of all of said plurality of
8 buyer's intelligent negotiation agents,

9 forming a plurality of seller's intelligent negotiation agents, each said seller's
10 intelligent negotiation agent having an authority from an associated seller to sell at
11 least one of a plurality of said items and bundles comprising said common interest,
12 each of said plurality of seller's intelligent negotiation agents in communication with
13 said pool,

14 transmitting from said pool to said plurality of seller's intelligent negotiation
15 agents a request for bids to sell all items and bundles needed to fulfill said common
16 interest,

17 transmitting from each of said plurality of seller's intelligent negotiation agents
18 submits to said pool a bid to sell said at least one of said plurality of items and bundles
19 within the authority of said seller's intelligent negotiation agent.

1 33. A system for procurement using a computer that communicates over a
2 distributed network, the system comprising:

3 a plurality of sellers' intelligent negotiation agents,
4 a buyer's intelligent negotiation agent, in communication with said plurality of
5 sellers' intelligent negotiation agents,

6 wherein, when said plurality of sellers' intelligent negotiation agents receives a
7 request from said buyer's intelligent negotiation agent for at least one of a plurality of
8 bundles, said bundles comprising a plurality of individual product items and individual
9 service items, each of said plurality of seller's intelligent negotiation agents submits
10 that bid to said buyer's intelligent negotiation agent.

1 34. The system for procurement of claim 33, wherein:
2 said plurality of sellers' intelligent negotiation agents has rules of negotiation to
3 which each of said plurality of seller's intelligent negotiation agents has agreed, said
4 rules for a negotiation with said buyer's negotiation agent.

1 35. The system for procurement of claim 33, wherein:
2 said buyer's intelligent negotiation agent engages in an evaluation of said
3 submitted bids and accepts one of said bids.

1 36. The system for procurement of claim 35, wherein:
2 said evaluation comprises a short-term revenue maximization strategy.

1 37. The system for procurement of claim 35, wherein:
2 said evaluation comprises a long-term relationship management strategy.

1 38. The system for procurement of claim 35, wherein:
2 each said submitted bid comprises at least one of said individual product items
3 and individual service items, and
4 said evaluation comprises preferring pre-set bundles of said items.

1 39. The system for procurement of claim 35, wherein:

2 each said submitted bid comprises at least one of said individual product items
3 and individual service items, and
4 said evaluation comprises preferring at least one of said items that is critical to a
5 bundle of said items.

1 40. The system for procurement of claim 35, wherein:
2 each said submitted bid comprises at least one of said individual product items
3 and individual service items, and
4 said evaluation comprises preferring a bundle of complementary items.

1 41. The system for procurement of claim 35, wherein:
2 each said submitted bid comprises at least one of said individual product items
3 and individual service items, and
4 said evaluation comprises ranking a plurality of said items in a succession
5 wherein, if a first item having a first preference cannot be procured, then a second item
6 having a second preference is deemed acceptable.

1 42. The system for procurement of claim 35, wherein:
2 a bundle of items is accepted only if a first item of a plurality of items of said
3 bundle is available.

1 43. The system for procurement of claim 35, wherein:

2 each said submitted bid comprises at least one of said individual product items
3 and individual service items, and
4 said evaluation comprises preferring a higher number of bundles over a lower
5 number of available bundles.

1 44. The system for procurement of claim 35, wherein:
2 each said submitted bid comprises at least one of said individual product items
3 and individual service items, and
4 said evaluation comprises preferring items according to quality.

1 45. The system for procurement of claim 35, wherein:
2 each said submitted bid comprises at least one of said individual product items
3 and individual service items, and
4 said evaluation comprises analyzing dynamic fluctuations of price of an item
5 over time.

1 46. A system for cooperation between a plurality of buyer's intelligent negotiation
2 agents for procurement of bundles of items using computers that communicate over a
3 distributed network, the system comprising:
4 a pool of a plurality of cooperative buyer's intelligent negotiation agents, each of
5 said buyer's intelligent negotiation agents having a procurement interest in at least one
6 of a plurality of individual items and bundles of items, said pool having a common

7 interest comprising a combination of said procurement interests of all of said buyer's
8 intelligent negotiation agents,
9 a plurality of seller's intelligent negotiation agents, each said intelligent seller's
10 negotiation agent having an authority from an associated seller to sell at least one of a
11 plurality of bundles needed to fulfill said common interest, each of said plurality of
12 seller's intelligent negotiation agents in communication with said pool,
13 wherein, when said pool transmits to said plurality of seller's intelligent
14 negotiation agents a request for bids to sell all said bundles needed to fulfill said
15 common interest, each of said plurality of seller's intelligent negotiation agents submits
16 to said pool a bid to sell said at least one of a plurality of items and bundles within its
17 authority.

1 47. The system of claim 46, wherein:
2 said pool transmits an acceptance to at least one of said plurality of seller's
3 intelligent negotiation agents responsive to a bid from that seller's intelligent
4 negotiation agent.

1 48. The system of claim 46, wherein:
2 said pool transmits to at least one of said seller's intelligent negotiation agents a
3 counter-offer to a bid from that seller's intelligent negotiation agent.

1 49. The system for cooperation of claim 46, wherein:

2 said bundles comprise pre-set packages of individual items.

1 50. A system for cooperation between a plurality of buyer's intelligent negotiation
2 agents for procurement of items using computers that communicate over a distributed
3 network, the system comprising:

4 a plurality of cooperative buyer's intelligent negotiation agents, each of said
5 buyer's intelligent negotiation agents having a procurement interest in at least one of a
6 plurality of items, said plurality of cooperative buyer's intelligent negotiation agents
7 having a common interest comprising a combination of said procurement interests of all
8 of said buyer's intelligent negotiation agents,

9 a plurality of seller's intelligent negotiation agents, each said intelligent seller's
10 negotiation agent having an authority from an associated seller to sell at least one of a
11 plurality of items comprising said common interest, each of said plurality of seller's
12 intelligent negotiation agents in communication with said pool,

13 wherein, when said plurality of cooperative buyer's intelligent negotiation agents
14 transmits to said plurality of seller's intelligent negotiation agents a plurality of requests
15 for bids to sell all said items needed to fulfill said common interest, said plurality of
16 seller's intelligent negotiation agents submits those bids to said plurality of cooperative
17 buyer's intelligent negotiation agents.

1 51. The system of claim 50, wherein:

2 said plurality of cooperative buyer's intelligent negotiation agents transmits to at

3 least one of said seller's intelligent negotiation agents an acceptance of a bid from that
4 seller's intelligent negotiation agent.

1 52. The system of claim 50, wherein:
2 said plurality of cooperative buyer's intelligent negotiation agents transmits to at
3 least one of said seller's intelligent negotiation agents a counter-offer to a bid from that
seller's intelligent negotiation agent.

1 53. The system for cooperation of claim 50, wherein:
2 said bids comprise one bid from each of said plurality of seller's intelligent
3 negotiation agents, said bid for at least one of said items needed to fulfill said
4 procurement interest of at least one of said plurality of cooperative buyer's negotiation
5 agents.

1 54. A system for cooperation between a plurality buyer's intelligent negotiation
2 agents for procurement of items using computers that communicate over a distributed
3 network, the system comprising:
4 a pool of a plurality of cooperative buyer's intelligent negotiation agents, each of
5 said buyer's intelligent negotiation agents having a procurement interest in at least one
6 of a plurality of items, said pool having a common interest comprising a combination of
7 said procurement interests of all of said buyer's intelligent negotiation agents, said pool
8 having a lead cooperative buyer's intelligent negotiation agent for conducting

9 communications on behalf of said pool, said lead intelligent cooperative buyer's
10 negotiation agent in communication with all other said intelligent cooperative buyer's
11 negotiation agents of said pool,
12 a plurality of seller's intelligent negotiation agents, each said intelligent seller's
13 negotiation agent having an authority from an associated seller to sell at least one of a
14 plurality of items comprising said common interest, said plurality of seller's intelligent
15 negotiation agents in communication with said pool, said plurality of sellers' intelligent
16 negotiation agents having a lead intelligent seller's negotiation agent for conducting
17 communications for said plurality of sellers' intelligent negotiation agents, said lead
18 intelligent seller's negotiation agent in communication with all other said seller's
19 intelligent negotiation agents of said plurality of sellers' intelligent negotiation agents
20 and with said lead intelligent cooperative buyer's negotiation agent,
21 wherein, when said pool transmits to said plurality of sellers' intelligent
22 negotiation agents said plurality of requests for bids, each said request for one of said
23 seller's intelligent negotiation agents to bid to sell all said items needed to fulfill said
24 procurement interest of said cooperative buyer's negotiation agent, said plurality of
25 sellers' intelligent negotiation agents submits those bids to said pool.

1 55. The system of claim 54, wherein:
2 said pool transmits to at least one of said cooperative seller's intelligent
3 negotiation agents an acceptance of a bid from said cooperative seller's intelligent
4 negotiation agent.

- 1 56. The system of claim 54, wherein:
- 2 said pool transmits to at least one of said plurality of cooperative seller's
- 3 intelligent negotiation agents a counter-offer to a bid from that cooperative seller's
- 4 intelligent negotiation agent.
- 1 57. The system for cooperation of claim 54, wherein:
- 2 said procurement interest in at least one of a plurality of items of each of said
- 3 intelligent cooperative buyer's negotiation agents of said pool comprises an interest in
- 4 a bundle of items.
- 1 58. The system for cooperation of claim 54, wherein:
- 2 said pool has a set of negotiation rules for conducting communications between
- 3 said pool and said plurality of sellers' intelligent negotiation agents.
- 1 59. The system for cooperation of claim 54, wherein:
- 2 said bids comprise one bid from each of said plurality of seller's intelligent
- 3 negotiation agents, said bid for at least one of said items needed to fulfill said
- 4 procurement interest of at least one of said cooperative buyer's negotiation agents of
- 5 said pool.
- 1 60. The system for cooperation of claim 14, wherein:

2 said sellers' intelligent negotiation agents share information regarding prices of
3 items.

1 61. The system for cooperation of claim 54, wherein:
2 said plurality of requests for bids comprises at least one aggregated request for
3 bid to sell a subset of items, said subset of items comprising at least one of said
4 plurality of items needed to fulfill each procurement interest of a plurality of said
5 cooperative buyer's negotiation agents.

1 62. The system for cooperation of claim 16, wherein:
2 said subset of items comprises a bundle.

1 63. A method for procurement of an item using computers that communicate over a
2 distributed network, the method comprising:
3 receiving a request from a buyer's intelligent negotiation agent for bids to sell at
4 least one of a plurality of bundles, said bundles comprising a plurality of individual
5 product items and individual service items, and
6 transmitting from each of a plurality of seller's intelligent negotiation agents to
7 said buyer's intelligent negotiation agent a bid responsive to said request.

1 64. The method of claim 63, further comprising:
2 agreeing to rules of negotiation for a negotiation between said plurality of seller's

3 intelligent negotiation agents and said buyer's intelligent negotiation agent.

1 65. The method of claim 63, further comprising:

2 transmitting an acceptance by said buyer's intelligent negotiation agent to at

3 least one of said seller's intelligent negotiation agents of at least one of said bids.

1 66. The method of claim 63, further comprising:

2 said buyer's intelligent negotiation agent evaluating at least one of said bids

3 according to a short-term revenue conservation strategy.

1 67. The method of claim 63, further comprising:

2 said buyer's intelligent negotiation agent evaluating at least one of said bids

3 according to a long-term relationship management strategy.

1 68. A method for cooperation between a plurality of buyer's intelligent negotiation

2 agents for procurement of bundles of items using computers that communicate over a

3 distributed network, the method comprising:

4 transmitting from a pool of a plurality of cooperative buyer's intelligent

5 negotiation agents to a plurality of seller's intelligent negotiation agents a request for

6 bids to sell bundles of items for fulfillment of a common interest of said pool,

7 said common interest of said pool of buyer's intelligent negotiation agents

8 comprising a procurement interest of each of said buyer's intelligent negotiation agents

9 in at least one of a plurality of said bundles,
10 said common interest comprising a combination of said procurement interests of
11 all of said buyer's intelligent negotiation agents, and
12 each of said plurality of seller's intelligent negotiation agents submitting to said
13 pool a bid to sell at least one of said plurality of items and bundles, each of said
14 plurality of seller's intelligent negotiation agents having an authority from an associated
15 seller to sell at least one of said plurality of items and bundles needed to fulfill said
16 common interest.

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1 69. The method of claim 68, wherein:
2 said bundles comprise preset packages of individual items, each said individual
3 item one of a plurality of individual product items and individual service items.

1 70. A method for cooperation between a plurality of buyer's intelligent negotiation
2 agents for procurement of items using computers that communicate over a distributed
3 network, the method comprising:
4 transmitting from a plurality of cooperative buyer's intelligent negotiation agents
5 to a plurality of seller's intelligent negotiation agents a plurality of requests for bids to
6 sell items for fulfillment of a common interest of said plurality of cooperative buyer's
7 intelligent negotiation agents, said common interest comprising a combination of
8 procurement interests of each of said plurality of cooperative buyer's intelligent
9 negotiation agents, and

10 transmitting those bids from said plurality of seller's intelligent negotiation agents
11 to said plurality of buyer's intelligent negotiation agents, each said seller's intelligent
12 negotiation agent having an authority from an associated seller to sell at least one of a
13 plurality of items for fulfillment of said common interest.

1 71. A method for cooperation between a plurality of buyer's intelligent negotiation
2 agents for procurement of items using computers that communicate over a distributed
3 network, the method comprising:

4 transmitting from a pool of cooperative buyer's intelligent negotiation agents to a
5 plurality of seller's intelligent negotiation agents a plurality of requests for bids, each
6 said request for one of said seller's intelligent negotiation agents to bid to sell all items
7 needed to fulfill a common interest of said pool of said cooperative buyer's intelligent
8 negotiation agents, said common interest comprising a procurement interest of each of
9 said cooperative buyer's intelligent negotiation agents in at least one of a plurality of
10 items, and

11 said plurality of seller's intelligent negotiation agents submitting those bids to
12 said pool.

1 72. The method of claim 71, wherein:

2 a lead cooperative buyer's intelligent negotiation agent transmits said plurality of
3 requests for bids on behalf of said pool to a lead seller's intelligent negotiation agent on
4 behalf of said plurality of seller's intelligent negotiation agents.

- 1 73. The method of claim 72, wherein:
- 2 said common interest comprises an interest in a bundle of items.
- 1 74. The method of claim 72, wherein:
- 2 said pool has a set of negotiation rules for conducting communications between
- 3 said pool and said plurality of seller's intelligent negotiation agents.
- 1 75. The method of claim 71, wherein:
- 2 said bids comprise one bid from each of said plurality of seller's intelligent
- 3 negotiation agents, said one bid for at least one of said items needed to fulfill said
- 4 procurement interest of at least one of said cooperative buyer's intelligent negotiation
- 5 agents of said pool.
- 1 76. The method of claim 71, wherein:
- 2 said plurality of requests for bids comprises at least one aggregated request for
- 3 a bid to sell a subset of items, said subset of items comprising at least one of said
- 4 plurality of items needed to fulfill each procurement interest of said plurality of
- 5 cooperative buyer's intelligent negotiation agents.
- 1 77. The method of claim 76, wherein:
- 2 said subset of items comprises a bundle.

1 78. A computer program product comprising a machine readable medium on which
2 is provided program instructions for performing a method for procurement of an item
3 using computers that communicate over a distributed network, the program instructions
4 comprising:

5 program code for receiving a request from a buyer's intelligent negotiation agent
6 for bids to sell at least one of a plurality of bundles, said bundles comprising a plurality
7 of individual product items and individual service items, and

8 program code for transmitting from each of a plurality of seller's intelligent
9 negotiation agents to said buyer's intelligent negotiation agent a bid responsive to said
10 request.

11 79. A system for automated arbitrage using computers that communicate over a
12 distributed network, the system comprising:
13 **a plurality of sellers' intelligent negotiation agents,**
14 **at least one buyer's intelligent negotiation agents,**
15 **a dynamic intelligent negotiation agent** in communication with said plurality of
16 sellers' intelligent negotiation agents and in communication with said at least one
17 buyer's intelligent negotiation agent, said dynamic negotiation agent having a buyer
18 mode and a seller mode,
19 each said sellers' intelligent negotiation agent having **an authority** from an
20 **associated seller** to sell at least one item needed to fulfill **a procurement interest** of

21 said buyer's intelligent negotiation agent,
22 wherein, when each of said sellers' intelligent negotiation agents receives a
23 request from said dynamic intelligent negotiation agent in said buyer mode for a bid to
24 sell one of said items, each of said sellers' intelligent negotiation agent submits that bid
25 to said dynamic intelligent negotiation agent, and
26 wherein, when said dynamic intelligent negotiation agent in said buyer mode
27 determines to accept said bid from said sellers' intelligent negotiation agent, said
28 dynamic intelligent negotiation agent in said seller mode submits a bid to sell that item
29 to said buyer's intelligent negotiation agent.

1 80. The system of claim 79, wherein:
2 when said dynamic intelligent negotiation agent transmits to said plurality of
3 sellers' intelligent negotiation agents a plurality of requests for bids to sell a plurality of
4 said items, at least one of said sellers' intelligent negotiation agents submits to said
5 dynamic intelligent negotiation agent a bid to sell said plurality of items, and
6 when said dynamic intelligent negotiation agent in said buyer mode determines
7 to accept said bid, said dynamic intelligent negotiation agent in said seller mode
8 submits at least one bid to at least one of said at least one buyer's intelligent
9 negotiation agent to sell plurality of items.

1 81. The system of claim 80, further comprising:
2 a plurality of said at least one buyer's intelligent negotiation agents submitting

- 3 an acceptance of said at least one bid from said dynamic intelligent negotiation agent
- 4 to sell said plurality of items,
- 5 said dynamic intelligent negotiation agent in said buyer mode accepts at least
- 6 one bid from at least one of said sellers' intelligent negotiation agents to sell said
- 7 plurality of items to said dynamic intelligent negotiation agent, and
- 8 said dynamic intelligent negotiation agent distributes at least one of said plurality
- 9 of items to each of a plurality of buyers, each said buyer associated with one of said
- 10 buyer's intelligent negotiation agents.

1 82. The system of claim 80, wherein:

2 said bid to said dynamic intelligent negotiation agent from said sellers' intelligent

3 negotiation agent includes at least one contract contingency authorizing said seller to

4 pay said dynamic intelligent negotiation agent a penalty if said seller elects to sell said

5 selected item to another than said dynamic intelligent negotiation agent.

- 1 83. The system of claim 79, wherein:
 - 2 said buyer's intelligent negotiation agent submits an acceptance of said bid to
 - 3 sell that item to said dynamic intelligent negotiation agent.

1 84. The system of claim 83, wherein:
2 said dynamic intelligent negotiation agent accepts said bid to sell one of said
3 items from said sellers' intelligent negotiation agent.

1 85. The system of claim 79, further comprising:
2 a buyer associated with said buyer's intelligent negotiation agent,
3 said sellers' intelligent negotiation agent instructs said associated seller to ship
4 said item directly to said buyer.

1 86. The system of claim 79, wherein:
2 said dynamic intelligent negotiation agent transmits its executable code to a
3 remote location of at least one of said sellers' intelligent negotiation agents and said
4 buyer's intelligent negotiation agent for mobility.

1 87. The system of claim 79, wherein:
2 said bid to said dynamic intelligent negotiation agent from said sellers' intelligent
3 negotiation agent includes at least one contract contingency authorizing said seller to
4 pay said dynamic intelligent negotiation agent a penalty if said seller elects to sell said
5 selected item to another than said dynamic intelligent negotiation agent.

1 88. The system of claim 87, wherein:
2 said bid to said buyer's intelligent negotiation agent by said dynamic intelligent
3 negotiation agent includes at least one contract contingency authorizing said dynamic
4 intelligent negotiation agent to pay said buyer's intelligent negotiation agent a penalty if
5 said seller elects to sell said selected item to another than said dynamic intelligent

6 negotiation agent.

1 89. The system of claim 79, wherein:

1 said dynamic intelligent negotiation agent selects one of **a plurality of**
2 **evolutionary computation resources** to send and receive messages to and from said
3 plurality of seller's intelligent negotiation agents and said at least one buyer's intelligent
4 negotiation agents.

90. The system of claim 89, wherein:

 said plurality of evolutionary computation resources comprises genetic
algorithms.

91. The system of claim 89, wherein:

 said plurality of evolutionary computation resources comprises genetic
programming.

1 92. The system of claim 89, wherein:

2 said plurality of evolutionary computation resources comprises neural networks.

1 93. The system of claim 89, wherein:

2 said dynamic intelligent negotiation agent in said buyer's mode selects one of
3 said plurality of evolutionary computation resources for optimal computation of a match

4 in said bids from said sellers' intelligent negotiation agents for each specification of a
5 set of buyer's specifications for said at least one of a plurality of bundles.

1 94. A method for automated arbitrage using computers that communicate over a
2 distributed network, the method comprising:

3 transmitting to each of a **plurality of sellers' intelligent negotiation agents** a
4 request for a bid to sell at least one item needed to fulfill a procurement interest of a
5 buyer's intelligent negotiation agent,

6 receiving from said seller's intelligent negotiation agent that bid, and

7 transmitting to said **buyer's intelligent negotiation agent** a bid to sell that item.

8 95. The method of claim 94, further comprising:

9 receiving from said buyer's intelligent negotiation agent an acceptance of said
10 bid to sell that item.

11 96. The method of claim 95, further comprising:

12 accepting said bid from said seller's intelligent negotiation agent to sell said at
13 least one item.

14 97. The method of claim 96, further comprising:

15 shipping said item directly from a seller associated with said seller's intelligent
16 negotiation agent to a buyer associated with said buyer's intelligent negotiation agent.

- 1 98. The method of claim 94, wherein:
- 2 said bid from said sellers' intelligent negotiation agent includes at least one
- 3 contract contingency authorizing a seller associated with said seller's intelligent
- 4 negotiation agent to pay a penalty if said seller elects to sell said selected item to
- 5 another buyer.
- 1 99. The method of claim 98, wherein:
- 2 said bid to said buyer's intelligent negotiation agent includes at least one
- 3 contract contingency authorizing payment of a penalty to said buyer's intelligent
- 4 negotiation agent if said seller elects to sell said selected item to another buyer.
100. The method of claim 94, further comprising:
- 2 selecting one of a plurality of evolutionary computation resources to send and
- 3 receive messages to and from said plurality of seller's intelligent negotiation agents
- 4 and said at least one buyer's intelligent negotiation agents.
- 1 101. The system of claim 79, wherein:
- 2 a seller associated with said seller's intelligent negotiation agent ships said item
- 3 directly to a buyer associated with said buyer's intelligent negotiation agent.
- 1 102. A system for cooperation between pools of buyer's intelligent negotiation agents

2 for procurement using a computer that communicates over a distributed network, the
3 system comprising:
4 a pool of cooperative buyer's intelligent negotiation agents, said pool comprising
5 a plurality of buyer's intelligent negotiation agents having a common interest,
6 at least one of a plurality of seller's intelligent negotiation agents,
7 a neutral cooperative intelligent negotiation agent in communication with said
8 pool of cooperative buyer's intelligent negotiation agents and with said at least one of a
9 plurality of seller's intelligent negotiation agents, said neutral cooperative negotiation
10 agent for brokering a negotiation between said pool of cooperative buyer's intelligent
11 negotiation agents and said at least one of a plurality of seller's intelligent negotiation
12 agents,
13 wherein, when said neutral cooperative negotiation agent submits to said at
14 least one of a plurality of seller's intelligent negotiation agents a set of buyer-defined
15 attributes minimally acceptable to said pool for at least one item, said neutral
16 cooperative negotiation agent receives from said plurality of seller's intelligent
17 negotiation agents a set of seller's item specifications for at least one item available
18 from at least one of a plurality of sellers associated with said plurality of sellers'
19 intelligent negotiation agents, said item selected from a list of individual product items
20 and individual service items, and said neutral cooperative negotiation agent submits
 said set of seller's item specifications to said pool.

1 103. The system for cooperation of claim 1, further comprising:

2 a cooperative communications network comprising a distributed network of
3 nodes related by a common interest, and
4 each of a plurality of buyer's intelligent negotiation agents registered with said
5 cooperative communications network,
6 wherein, when a lead cooperative buyer's intelligent negotiation agent
7 broadcasts to said cooperative communications network an interest in a selected item,
8 said pool forms of intelligent cooperative buyer's negotiation agents having a shared
9 interest in said selected item.

TECHNICAL FIELD

1 104. The system for cooperation of claim 2, wherein:
2 said lead cooperative buyer's intelligent negotiation agent is for direct
3 communication with said neutral cooperative negotiation agents of said pool, and said
4 lead intelligent cooperative buyer's negotiation agent is for direct communication with
5 said at least one of a plurality of seller's intelligent negotiation agents.